

THE MAGAZINE

QUANTA

Vol. 30 Iss. 3

QL USERS AND TINKERERS ASSOCIATION

June/July Issue 2013

AGM, some pictures, the grey cells are working

Updates on software and operating systems

Speed and efficiency, we tested them all (almost)

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30
years

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Information on the Association

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership Secretary can supply full details. Copies of the association's constitution & annual accounts are available from the Secretary. There is an extensive software library and active national subgroups. Details are given in the Member's Guide and in this magazine.

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COPY DATE for AUG/SEP 2013 ISSUE is: 5th AUG 2013

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**All Contributions are Welcome
Copy by Email to - editor@quanta.org.uk**

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With this issue I am reminded that in a timely fashion it should now be summer and if you read this during June/July then gone should be the cold weather. Sadly the climate in the UK and I suspect elsewhere in the world seems to be changing. I distinctly remember last year having the central heating switched on because it was so cold. Am I (as I get older) needing more warmth or is it really changing?

It is about now that I think of future holidays and enjoying fresh air and those little projects for the QL that I intend to do, down the bottom of my garden (pottering around in the converted shed). There is no heating there so I am reliant on clement weather, such are the rules and regulations of the household.

This issue includes input from the SQLUG newsletter and a review of WEST, as ever we would like contributions from our members, for our members. You know where to write.

The QUANTA magazine is in its 30th year, the Sinclair QL will reach its 30th anniversary early next year, if there is anything you wish to see please contact us via the normal methods. Keith Dunbar has supplied an email address we can use to petition Google to put up a "QL Is 30" Google logo next year, perhaps. From time to time, Google puts up custom logos, called Doodles, in place of its familiar colourful Google logo to celebrate milestones or certain subjects.

Keith writes: "If you want to suggest that Google puts a Doodle on their site to celebrate the QL the email address you need to contact is proposals@google.com "

If you have QL-related news items that you'd like us to include on this page, please get in touch with News Editor - Dilwyn Jones at news@quanta.org.uk

QL successfully connected to the Internet via WiFi!

'Dex' from the QL Forum posted this item *"This inch title says, that I had successful attempt to talk with ConnectOne Cesure iWiFi module over serial."*

He then went on to state that, *"The module acts as "internet modem", controlled using AT commands (as a modem). On the attached picture you can see AT commands to display own IP address, ping of URI, and get HTTP content."*



The same (but miniaturised) module was used on ZX Spectrum for

its IRC client (<http://sourceforge.net/projects/bitchzx/>).

<http://www.youtube.com/watch?v=nn0JyxaeE0M>

Of course, this is the initial experiment and proof of concept, not a ready WWW browser (nor mail, telnet, IRC, ...).

Improved program for setting up the wireless connection:



You can read the full posting here:

<http://www.qlforum.co.uk/viewtopic.php?f=12&t=53&start=10>

QL Keyboard 90 Interface Manual

Thanks to Timothy Swenson, I have been able to add a replacement manual for the Falkenberg QL-Keyboard-90 interface to my website. Available as a Word or PDF document, from

<http://www.dilwyn.me.uk/docs/manuals/index.html>



SMSQ/E 3.16 is out.

It contains Marcel's bug fix for the AURORA COLOUR_NATIVE command and there is also a new window move mode :

Move with transparency.

(The following is an extract of the display_txt file in the extras_new directory:)

a - New move mode

The WM_MOVEMODE keyword has been extended to accept a new move mode:

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Welcome

Quo Vadis Design sells software for the Sinclair Quantum 2 map computer (QL) and variants including a new OS called MATHS.

The QL is a computer in its 25th year Anniversary.



News

- QVD QL News Blog - keep up to date
[News Blog](#)
04/10/2009
- Quo Vadis Design Website Launched
06/06/2008

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**ALL THE BEST FOR
THE NEW YEAR**

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our website for updates.
www.ql-qvd.com/blog



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WM_MOVEMODE 3 : the "full window with transparency" move
The window to be moved is made "transparent" : one can "see through" it.

This is done via "alpha blending". Alpha blending requires *A LOT* of computing power. So, even if your machine can theoretically handle this type of move, in practice it might not be feasible. I don't believe, for example, that the QXL can handle it.

For Q40/Q60 users, switching on the Cache is advisable...

This type of move is only implemented for display modes where alpha blending actually makes sense, i.e. modes 16, 32 and 33. In other display modes, such as the QL screen modes, or Atari mono modes, this will be redirected to move mode 2.

Please note that you cannot use this move mode with anything but the mouse - the keyboard (cursor keys) will not work.

b - Configuring/setting the move mode

The move modes are configured on a system-wide basis - you cannot have one job moving in mode 0 and the other in mode 1.

Thus, all jobs are affected by the move mode, even those written a long time ago (unless, such as Qlib, the job doesn't use the WMAN move routine).

The move mode can be changed in two ways:

1 - Configure SMSQ/E (WMAN) to a mode of your liking.

2 - Use the new WM_MOVEMODE keyword

This takes one parameter, an integer from 0 to 3:

WM_MOVEMODE 0 : the old way

WM_MOVEMODE 1 : the "outline" move

WM_MOVEMODE 2 : the "full window" move

WM_MOVEMODE 3 : the "full window with transparency" move

c - Configuring/setting the degree of transparency :

WM_MOVEALPHA

You can set how transparent the window is supposed to be when being moved, from nearly totally transparent to totally opaque. This is done by setting the "alpha value", from 1 (nearly transparent) to 255 (totally opaque).

The alpha value is configured on a system-wide basis - you cannot have one job moving with an alpha value of 100 and the other with 200.

Thus, all jobs are affected by this, even those written a long time ago (unless, such as Qlib, the job doesn't use the WMAN move routine).

The alpha value can be changed in two ways:

1 - Configure SMSQ/E (WMAN) to a value of your liking.

2 - Use the new WM_MOVEALPHA keyword

WM_MOVEALPHA : this new keyword defines the amount of

transparency the window should have when moved about, from 1 (nearly transparent) to 255 (totally opaque).

Please note that:

1. no check is made on the value passed to this keyword, but only the lower byte is used.
2. a value of 255 is actually equivalent to move mode 2.
3. a value of 0 is allowed but, since this would make the window to be moved totally transparent when it is moved (i.e. you would only ever see the background) this is considered to be an error and a value of 255 will be used!
4. alpha blending requires a lot of computing power - it may be too slow on your machine.

A new update to SMSQmulator

SMSQmulator 1.18 is on the website:

(www.wlenerz.com/SMSQmulator)

- It uses the new move mode.
- There are some bugfixes.
- The emulation can be suspended when the window is minimized.

Notification of a User Group Closure

I'm sorry to have to report that the West Midlands QL and 68000 User Group, which incorporates the QUANTA West Midlands sub-group, closes this month. I believe this may be the longest-established sub-group, which first met in the city-centre Holloway pub in 1984 and over 700 times in the intervening 29 years since - but alas no longer.

QUANTA Magazine

The club has issued hundreds of newsletters, distributed scores of library discs and tapes, most notably the first free Qdos release of Psion's integrated Xchange suite, funded the purchase of software and hardware for collective use, helped to arrange local workshops and organised thrilling annual auctions which gave many members a periodic chance to try out some of the more eccentric QL add-ons. Talks and demos have featured luminaries such as Tony Tebby, Stuart Honeyball, Dilwyn Jones and Honorary Member Chas Dillon.

But over the decades attendance has declined from 40 or more in the heyday of the QL to the point when only 7 members remained on the rolls this year, with several of those - including me - no longer able to attend regularly. The final membership roster is Chas, Mike, John Else, Dave Evetts, Alan Hunt, Mike Tracey and myself.

The crunch came when Treasurer, Secretary and general linchpin Mike Bedford-White suffered a stroke, followed by two recurrences this spring. Mike is now "on an even keel", able to speak and being supported by his girlfriend and members of his local churches, but he is still recovering and understandably no longer in a position to run the dwindling group, or inclined to give it the same priority in his life as it has had since last century when he and his friend Dougie took the reins; I took over the job of Chairman on Dougie's death.

After payment of outstanding bills the balance of the accounts will be paid to the Macmillan cancer charity in accordance with clause 11.2 of the Association's constitution, last revised in 1988. Mike remains a member of QUANTA and will retain use of the club's QL monitors and disc drives.

I would be grateful if you were to confirm receipt of this mail and publish this notice in the next available issue of QUANTA, for the information of other QL enthusiasts and to remind them for a last time that we're still here, though the group is not.

Sincerely

Simon N Goodwin
Chairman, QL User Group (West Midlands)

(I am sure that all QUANTA members are sad to see a sub group fold but wish a continued and speedy recovery to Mike Bedford Ed.)

Keith Dunbar writes:

Interesting, anyone fancy using it on the QL?

(It's a long web link that follows this image and has been placed deliberately for practical reasons rather than aesthetic ones)



http://hackaday.com/2013/05/28/an-overkill-network-adapter-for-retrocomputers/?utm_source=feedburner&utm_medium=feed&utm_campaign=Feed%3A+hackaday%2FLgoM+%28Hack+a+Day%29

Assembly Language Mailing List.

Norman Dunbar writes:

With the coming demise of the printed version of QL Today, and the fact that I'm part way through the Assembly Language series, I've set up a mailing list on my web site so that anyone wishing to complete the series can sign up and I'll email you when I have an article ready to download.

The plans at the moment are:

- * Upload a PDF of the series so far, in one PDF book. However, because the tools I use can also create html, ePub and such like, I might be convinced to add a couple of extra formats. This work is pretty much done, and the main "book" may be appearing soon.

- * Upload each new chapter as and when I complete it.

There will be no spam on the mailing list, the only emails you will get will be to advise you of a new chapter being available.

You can sign up at <http://qdosmsq.dunbar-it.co.uk/maillinglist>. Indeed, you can unsubscribe as well. You will be required to enter your forename and surname please. This isn't going to be used

against you, only to try and stop spam-bots signing up. (I get a lot of that I'm afraid!)

I've updated by website <http://qdosmsq.dunbar-it.co.uk> with the details of the mailing list, so there is a link there as well - just in case.

My final article in (the printed) QL Today has details as well.

(QL Today website is advertised elsewhere in this issue, the website can be found here: <http://www qltoday.com/> Ed.)

An update to SQRVIEW

Bob Spelten jr. writes:

I have put an upgrade of my SQRview program on the site.

You can now easily browse through your current picture directory when DBAS is installed.

SQRview also has its own RLE routines, so sprites can be saved with compression.

QL-PIC files with excess padding, produced by "other" tools are no longer causing crashes. Also some issues that came up during the testing in SMSQmulator have been fixed. Some in SQRview and some in SMSQ/m. Thanks to Wolfgang.

Also QCoCo and QCP have been updated and tested in SMSQ/m (v1.18). No more excuses for not using High Colours.

RWAP Software

We have been working hard to safeguard the future of the Sinclair QL through creating an online QL Wiki backed by a repository of QL titles.

The QL Wiki enables people to see what software and hardware was produced for the Sinclair QL. The repository enables people to purchase working copies when their microdrive cartridges fail, or they move onto disks or emulators. Where we can, we obtain permission from the copyright holders to re-release items on the market.

This has enabled us to bring some of the titles back to the market as well as re-ignite interest in the Sinclair QL and its emulators.

Old favourites brought back to life include:

E.V.A., Vroom
Black Knight, Double Block
Jungle Eddi, The Lost Pharaoh
Pengi, the Lonely Joker
Microdeal's Flight Simulator, QL Hopper, The King,
Night Nurse and Cuthbert in Space
Mortville Manor, Darkside of the Moon (£10)

We still retain our existing catalogue, including:

Open Golf, Return to Eden,
Stone Raider II, The Prawn,
Hoverzone, Lost Kingdom of Zkul,
Deathstrike, Horrorday,
Flightdeck and QWord

All games are available on disk or for use with Q-emuLator on the PC **from ONLY £5 each**

Microdrive versions also available - from £10 each.
Memory / system limits may apply - please check before ordering.

Visit the QL Wiki for more details on software, books and hardware for the Sinclair QL:

www.rwapadventures.com/ql_wiki

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Staffordshire ST11 9BA
Tel: 01782 398143
Email: rich@rwapservices.co.uk

Website:

www.rwapsoftware.co.uk or www.sellmyretro.com



Vroom by Pyramide



E.V.A by Westwey



Mortville Manor by Pyramide



Double Block by Francois Lancaut



Night Nurse by Microdeal



(You can find Bob's website here:

<http://members.upc.nl/b.spelten/ql/> Ed.)

An update to Q-Dock

Further to the announcement of my Q-Dock program in the last issue, well a beta-tester broke it and in a big way. Which has meant quite a major rewrite to ensure compatibility across emulators (the current version would only have worked on QPC2) which delayed its availability.

While the delay is regrettable, it has given me time to make more graphics (docks and sprites) available for it. Some will be supplied on the disk, more downloadable from my website.

It's also given me the opportunity to include an auto-hide taskbar and start menu system, called Q-Bar, with it, giving a more integrated feel to both programs. The rewritten version of Q-Dock

is back in alpha testing at the time of writing (start of June) with a view to becoming available later in June, with apologies for the delay.

WEST REVIEW

PETER SCOTT

While dodging the inevitable holiday-week-off-work rain showers I managed to catch a few daytime Westerns on TV. The likes of Audie Murphy soon had me in the mood for more so I thought I'd revisit the old QL adventure classic West.



West was originally written by Alan Black and John R. Malone and published by Talent Systems in 1984 then later tuned up and re-released by Rich Mellor of RWAP. West is a text adventure, so follows the usual conventions of go east, pick up shovel etc. But has one big difference in that the game plays in real time, so while

you are pondering where to go or what to type next the in game events carry on regardless.

The time of day will pass, the odd animal might pass by or even attack you and your horse might wander off.

After one of my favourite QL loading screens West starts you off on the outskirts of an abandoned western ghost town with only an (un) trusty steed and a six gun for company. The task in hand is worthy of any classic western, track down a gang of ruthless robbers and recover the stolen loot.

With the real time clock ticking the game play is very fast for a text adventure and a failed game can last minutes. It's quite unusual in that you get three lives and all your belongings are left on the last body to die. (Maybe three marshals on the trail of the gang?)

Misfortune can take many forms, from rampaging Indians, angry rattlesnakes or the robbers themselves. One death saw me having a shootout with a robber only for him to miss me, hit my horse which died and crushed me.

The locations themselves are sparsely described but the descriptions are effective and the layout of the town really does paint a picture in your mind. The real star of the show though is the real time game engine which is different every play through. Items can be found in different places and confrontations happen at random.

Each game is like a small story of its own. You can be exploring a part of town when you might hear horses galloping in the distance or you might see vultures circling which could hint at trouble near by. Unlike a more traditional adventure which sees you having one play through that might last from start to finish, West has you

playing multiple times in one sitting with each attempt playing out in its own unique fashion.

```
This was the town bank. The
teller's counters run along the west
side of the room. There is a hatch at
the south end and a door leading
north. The exit to the street is
east.
>> north

You are in what is obviously the
manager's office. The only exit is
south. The room contains no
furniture. Only dust remains.
There is a pack of playing cards
here.
>> take cards

Sure.
A rattlesnake slithers by.
>> shoot snake

Bang! your gun has 5 bullets left.
You have killed the snake. Wise
move!.
>>
```

The fact that you never quite know what is round the corner can be a hindrance or a refreshing relief one game saw me having an unexpected game of cards with a robber while another had me knocked off my horse by a tree branch. The fast pacing makes for a unique experience and the atmosphere makes it worthy addition to any QL gaming collection.

SQLUG

GEORGE GWILT

S QLUG Newsletter has been very interesting of late, although difficult to get to their regular meetings unless you are in the vicinity of Scotland (see Subgroup details at the end of this magazine Ed.), you can subscribe to their newsletter.

The following is an extract and program listing from the latest issue regarding hidden and solid line in 3D drawings.

Extract is as follows:

The final demonstration programs are written in BASIC and are a conversion of a suite of programs written by I. O. Angel & B. J. Jones in their book "Advanced Graphics with the Sinclair ZX Spectrum" ISBN 333 35050 2.

The book is still in print and a copy of the original programs in the form of a zipped file for use on a spectrum emulator can be downloaded from the internet. The book is really a textbook which encourages the reader to carry out examples to extend their knowledge. Thus I think you can use the adapted QL version as long as it is not for commercial purposes.

3 Dimensional Perspective Projection and Hidden Line for The QL

One method of representing solid objects on a computer is by a list of the coordinates of each vertex of each facet or polygon that makes up the object and then a list of the facets. All the facets are assumed to be flat or convex.

As introduction there follows a simple basic program drawing a pyramid, taken from Garry Marshall in his book "Using Graphics on the Sinclair QL"

In this program the vertices of the pyramid are specified in their viewed position, so there is no need to move and rotate the pyramid (delete "to its position"). Each side and the base are defined in the data lines at the end of the program.

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In order to draw only the visible lines it is necessary to have a method of determining whether each facet is facing towards or away from the observer. The usual method is to check whether the normal pointing out from the facet is in the hemisphere pointing towards the observer or away.

The normal is calculated by the vector product of two adjacent edges. By convention the vertices of the edges are listed in an anticlockwise direction, so a negative value means it is facing the observer.

In this program the algorithm is better.

It finds the line between the eye and a position inside the object. If the point where this line meets the plane of a facet is between the eye and the internal position the facet is visible. Otherwise it is not.

Here is Garry Marshall's listing with extra remarks.

```
50  INK 0

100 DIM x(6), y(6), z(6)

110 PAPER 7: CLS: RESTORE 410

120 SCALE 20, -10, -10

125 REMark z co-ordinate of the eye

130 v = 5

135 REMark Load Number of faces
```



```
140 READ nf
145 REMark Load points for each face
150 FOR k=1 TO nf
160  READ np
170  FOR j=1 TO np
180    READ x(j), y(j), z(j)
190  END FOR j
193  REMark Check the normal is in the
visible range.
196  REMark Calculate co-ordinate change
of edge
200  x1 = x(1) - x(2) : y1 = y(1) - y(2) :
z1 = z(1) - z(2)
210  x3 = x(3) - x(2) : y3 = y(3) - y(2) :
z3 = z(3) - z(2)
215  REMark Calculate vector products or
co-factors
```

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220 $a = y_1 * z_3 - y_3 * z_1$

230 $b = z_1 * x_3 - z_3 * x_1$

240 $c = x_1 * y_3 - x_3 * y_1$

245 REMark Calculate determinant

250 $d = -(a * x(1) + b * y(1) + c * z(1))$

253 REMark Test for Hidden Face

260 $f = 1 + c * v / d$

265 REMark If not hidden

270 IF $f < 0$ THEN

275 REMark Reduce x & y for distance of
picture

280 FOR $j = 1$ TO np

290 $xt = x(j) / (1 - z(j) / v)$: $yt = y(j) / (1 -$
 $z(j) / v)$

295 REMark If first point move to it

300 IF $j=1$ THEN

310 POINT xt, yt

```
320      xs = xt
330      ys = yt
340  ELSE
345      REMark Draw edge
350      LINE TO xt,yt
360  END IF
370  END FOR j
375  REMark Draw line closing face
380  LINE TO xs,ys
390  END IF
400  END FOR k
410  DATA 5
420  DATA 3
425  REMark verticies
430  DATA -3, -1, -1, 0, 6, 0, 0, -1, 3
440  DATA 3
450  DATA 0, -1, 3, 0, 6, 0, 4, -1, 0
```

460 DATA 3

470 DATA 4, -1, 0, 0, 6, 0, 1, -1, -4

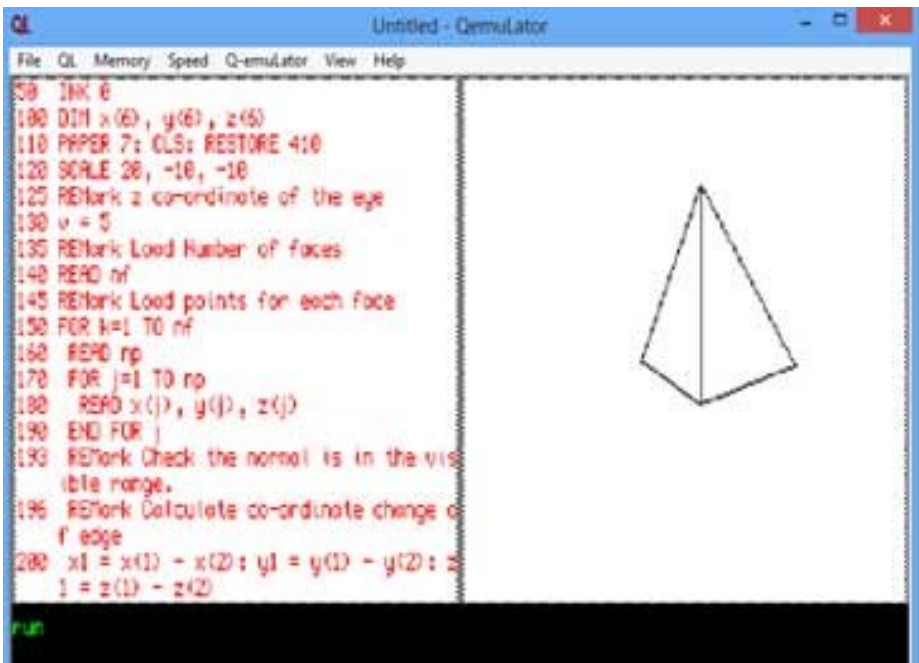
480 DATA 3

490 DATA 1, -1, -4, 0, 6, 0, -3, -1, -1

500 DATA 4

505 REMark Base

510 DATA -3, -1, -1, 0, -1, 3, 4, -1, 0,
1, -1, -4



This is fine for a single object but when there is more than one object in different positions and different orientations, some being partially hidden, the programming is far more complicated.

Objects are normally defined with the centroid at the origin and then rotated and moved to their required locations.

To see an object in differing orientations it is easier to alter the position of the eye and the plane of projection than to redefine the object.

BLINQ

LEE PRIVETT

A weird heading you may ask, but then life is full of surprises, and you will need to read a bit more before you understand the reason for the title.

The Sinclair original QL Black Box circa 1984 was, according to some, 'ahead of its time', particularly from the design aspect. Critics, I seem to remember, berated the quirky key shapes and rectangular sharpness of the QL. The QL team under Sinclair were probably limited by economies of the day and availabilities of components and the right/cheapest price.

It would be no surprise then, for example, to weigh up the cost of indicators for power and 'Microdrive' access using the following simplistic formula. Red LED = 10p Amber/Yellow LED = 11p, therefore one Red LED for power, two Yellow LEDs for 'Microdrive' access = 32p, whereas one Yellow LED for power, two Red LEDs for 'Microdrive' access = 31p, hardly a major saving, but multiply that by 100,000 QLs then it becomes significant. Rectangular

QUANTA

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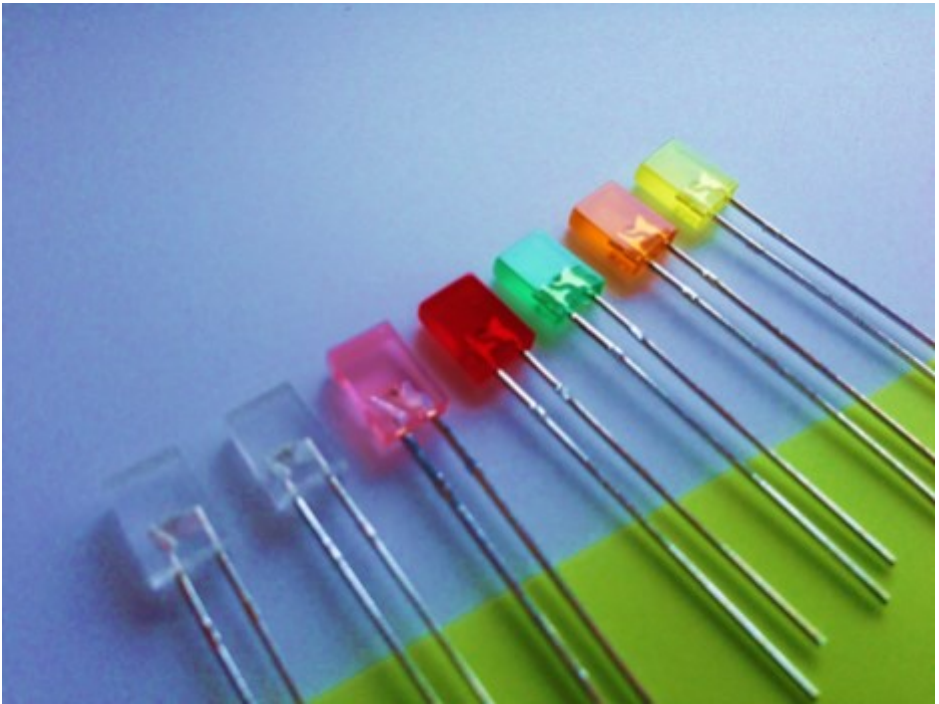
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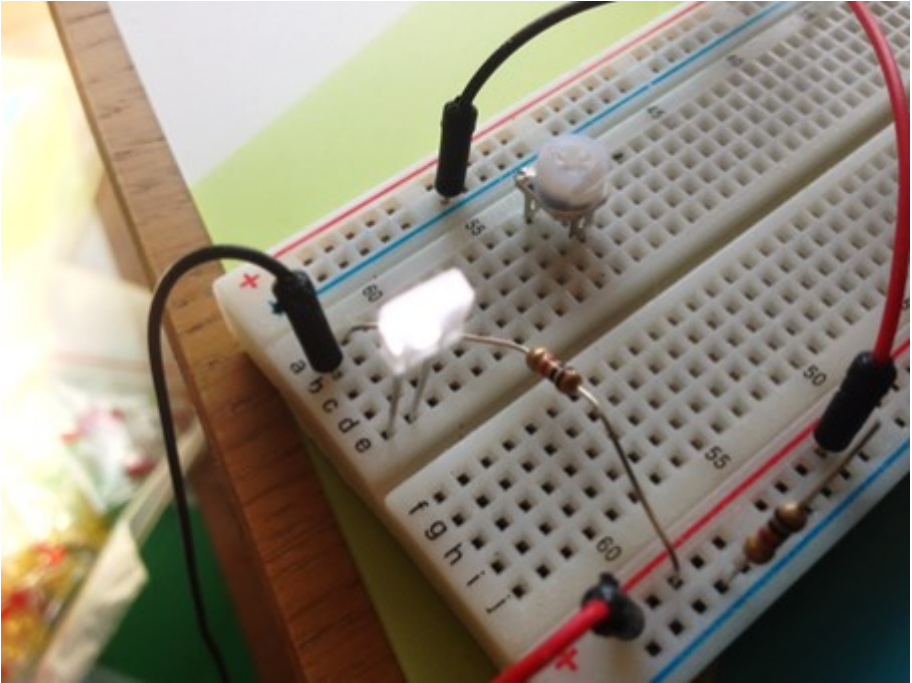
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Further details from the Membership Secretary
John Gilpin,
181, Urmston Lane, Stretford
Manchester. M32 9EH (UK)
Tel. 0161 865 2872

shaped LEDs were just becoming readily available and started to appear in many consumer and technical products. The QL team opted for this obviously! Cost may not have been the only limiting factor as the availability of different LED colours at the time stretched to four i.e. Red, Green, Orange & Yellow. Unless you are viewing this in colour, you are unlikely to appreciate the following image.



I seem to remember reading in an Electronic or Computing magazine somewhere between 1992 and 1994 about the invention and availability of a practical Blue LED, the cost of one of these were around £1000 (I kid you not!). In the last few years bright Blue and now White LEDs have become cheaply available.



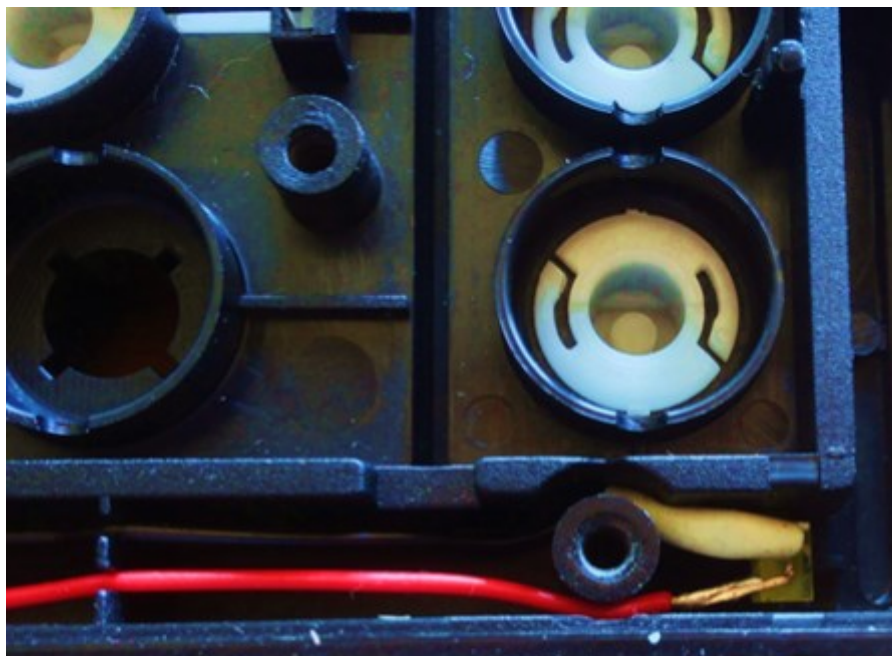
This brings us to the present day and for some of us, the need to try new things, adapt or even modernise equipment. The project, if you haven't already guessed is to replace the existing Yellow/ Amber LEDs on the BBQL with White or Blue or a combination of both as a way of giving the standard QL a fresh look. Why? Because we can.

The 'mod' is fairly straightforward and all that is needed is a soldering iron, solder (lead free), three LEDs of your choice and some basic electronic tools. You will also need to separate the two halves of the QL computer which, if you have not already not done so before, then this can have consequences.

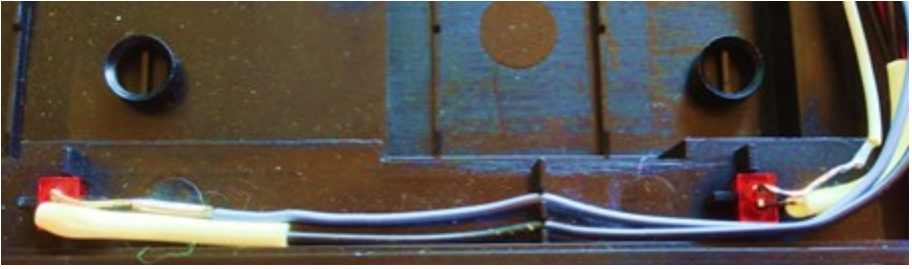
1. You will invalidate your warranty, if it has not already run out.

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2. You may need to disconnect leads and or ribbon cables/ membranes which can be tricky to put back.
3. You may break the keyboard membrane purely by moving it, as under certain environmental conditions it can get brittle with age. A replacement membrane is available from RWAP services should you do so (see advertisement elsewhere in this magazine).
4. Always work with power removed from such devices and observe any necessary static precautions.



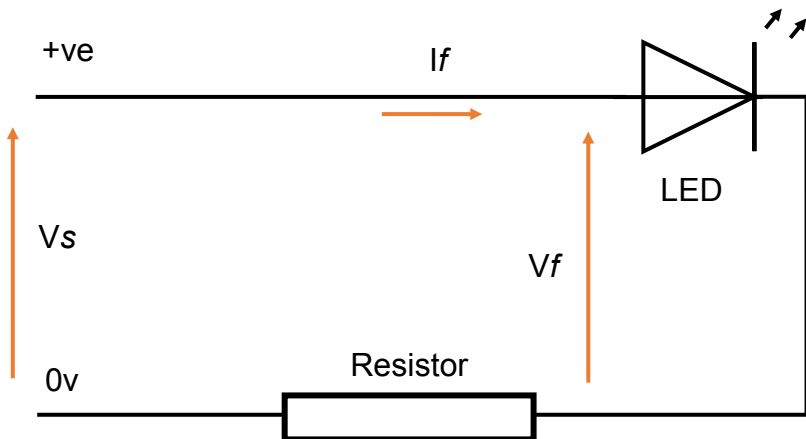
Removing the top half of the QL reveals the wires connected to the Power On and the Microdrive Access LED indicators. The Cathode connection normally has a black lead to it with sleeving over the connections. I have not attempted this modification with all versions of the Sinclair QL so this may differ, however it easily checked with a multi-meter. This is assuming you have one.



Removing the LEDs is achieved by de-soldering the connections to the cables and tapping out from the top with a suitable implement. I found this was necessary as the amount of time the LEDs had been in place had started to stick to the case. With one LED, the case underside snapped as I got too heavy handed with the tools I was using (so be warned), but the hot melt glue gun sufficed.

Soldering the replacement ones in their place, observing the correct polarity of the anode and cathode of the LED. Care should be taken at all times during this process as no liability can be accepted for damage to your QL. If in any doubt, consult a qualified person who can do this for you.

The basic electrical circuit involving LEDs is as follows;



In nearly all cases of LED power supplies, it is the current that is the limiting factor and this generally equates to around 20mA, the current is limited by simply using a resistor in series with the LED and calculated thus:

V_s = Supply Voltage

V_f = LED voltage

I_f = Typical forward current through the LED

R = Resistor value

The Ohms law formula is used to find the resistor value, hence $V/I = R$

Where $V = V_s - V_f$ Volts
 $I = 0.02$ Amps

Typically, for a 5 Volt supply

$V = 5 - 2.1 = 2.9V$
 $I = 0.02A$

Therefore $R = 2.9 / 0.02$
 $= 145\Omega$
 $= 150\Omega$ NPV

I cannot give you specific values if you are going to replace the resistors, as the technical specifications for each LED vary, and characteristics also. It will depend on the LED purchased. However in the case of the white LEDs I purchased online, the V_f was 2.7V, although in the end I did not change any resistors and left the ones on the motherboard in situ. The QL motherboard in this circumstance seems to be resilient of just replacing the LEDs with

other types. The brightness (lumens) of each LED will vary accordingly, I make no guarantees therefore.

Data is available of many websites and manufacturers of LEDs, to give you an example, here are three sets from the following website:

<http://www.techrobotsonline.com/opto-electronics/leds/rectangular-leds.html>

5 x 2mm Rectangular Standard Amber LED

Specification						
Colour	Wavelength (nm)	Lum. Int. (mcd) @ IF 10mA	IF max (mA)	VF Typ. (V)	VF max. (V)	View Angle
Std. Red	700	2	25	2	2.5	110

5 x 2mm Rectangular Standard Amber LED

Specification						
Colour	Wavelength (nm)	Lum. Int. (mcd) @ IF 10mA	IF max (mA)	VF Typ. (V)	VF max. (V)	View Angle
Amber	625	12.5	30	2	2.5	110

5 x 2mm Rectangular Standard White LED

Specification						
Colour	Wavelength (nm)	Lum. Int. (mcd) @ IF 20mA	IF max (mA)	VF Typ. (V)	VF max. (V)	View Angle
White	0.31,0.31 CC	150	30	3.2	4	110

You can see by comparing the above tables especially for current, luminosity and wavelength, all is not equal, so sometimes trial and error needs to be realised.



As a result, the above the power LED is shown illuminated and below the Microdrive LEDs also. I suppose the question you now should be asking me is, 'How did you get both Microdrive's running at the same time? If any one else has done a 'mod' that they would like to share, please contact the editor in the usual way.



HELPLINE

DILWYN JONES

Members wishing to submit helpline requests via email can use the email address helpline@quanta.org.uk or if you prefer to use traditional post, please send the helpline request to me via the address printed inside the front cover of the newsletter.

Obviously, we cannot guarantee to answer every query we receive, but we will do our best! Where we have been unable to answer the

queries, we may print the help request as an open request in the newsletter to ask if any of the readers can come up with a solution. And, of course, if readers feel that they have a better solution than we came up with, or would like to correct any errors we make, please write to us!

The following article is reproduced from Daniele Terdina's *Q-emuLator* blog at <http://qemulator.blogspot.co.uk/> - one of a number of QL blogs now operating (see list below the article). We do not normally reproduce whole articles like this but on this occasion this is such a helpful subject that we decided to reproduce it verbatim, given that *Q-emuLator* is now in widespread use as a QL emulator among Windows and Mac users.

Q-emuLator is widely regarded as one of the best and most compatible emulators especially for running older programs such as games using original QL ROM images, but the ability to use a Minerva ROM image (as well as a version of SMSQ/E if you want!) brings an extra dimension, even if (as the article shows) a few problem areas can arise with older software on a Minerva system (QL or emulated!).

A free trial version of *Q-emuLator* is available to download from <http://www.terdina.net/ql/q-emulator.html> along with a lot of information and screen shots of software which can run on the emulator. The full registered version is available for \$45.95 by buying a registration code through its website above.

Minerva and Games - Daniele Terdina

The Minerva ROM brings a number of improvements to QDOS, but some QL games (especially early ones) don't work correctly on it.

What are the technical reasons for these problems?

For last year's release of the "QL Games Collection" I worked on a special version of Q-emuLator to use as the runtime for the games and I had the opportunity to investigate and answer this question for many games.

Here is what I found, the main differences between Minerva and Sinclair ROMs that can cause incompatibilities:

- ◆ Minerva expects programs to run in user mode. If a program changes the supervisor stack pointer even just for a short while, Minerva can crash, for example when the interrupt 2 service routine is called.
- ◆ Some games take complete control of the QL, typically to maximize speed and available memory, to use the second hardware display page or to strengthen the copy protection. However, virtually all of these programs still need to call QDOS to communicate with the IPC co-processor to play sounds and to read the keyboard. In Sinclair ROMs, the IPC functions are at a lower level than the rest of the OS, but on Minerva IPC access is more similar to any other QDOS calls and it accesses the system variables, which these games normally overwrite. This can cause crashes or funky behaviour.
- ◆ The interrupt 2 handler, which some games use to get the correct timing or to run code periodically, accesses some system variables both on Sinclair and Minerva ROMs. However, the Sinclair handler can often continue to work when the variables are overwritten, while the Minerva one can not.
- ◆ Minerva treats unhandled exceptions very differently than the Sinclair ROM.

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It's actually pretty common for QL software to contain bugs that cause unhandled exceptions as when running on Sinclair ROMs most of these exceptions were simply ignored by QDOS and many software authors didn't even have a chance of noticing the problem.

On Minerva, unhandled exceptions cause a call to the OS rather than just being ignored and this in turn can have unexpected side effects, or crash the system when combined with any of the previous issues (for example for games that take over the entire system).

In general, when running early QL games on an emulator, the safer choice is to use a Sinclair ROM and set the amount of RAM to 128

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Visit the QL Wiki for more details on software, books and hardware for the Sinclair QL:
www.rwapadventures.com/ql_wiki

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Website:
www.rwapsoftware.co.uk or www.sellmyretro.com



Why a bad keyboard membrae could change your whole career strategy!

KB to avoid incompatibilities. A number of these games wouldn't work if the QL had a RAM expansion as they expected everything to be at the same fixed memory addresses as on a 128 KB QL.

QL Blogs

This is the list of QL blogs currently known to us. Do you know of any more?

Let us know via our email address helpline@quanta.org.uk and we'll print the details here.

- ◆ <http://www.armchairarcade.com/neo/blog> - Armchair Arcade (Bill Loguidice), includes QL posts
- ◆ <http://qemulator.blogspot.co.uk/> - Daniele Terdina's Q-emuLator blog
- ◆ <http://backtotheql.blogspot.com/> - Lee Privett's QL blog
- ◆ <http://www.memorylanecomputing.com/blog/> - Memory Lane Computing's Blog for Ser-USB, Q-BUS etc.
- ◆ <http://www.qlheaven.blogspot.de/> - "QL Heaven" blog
- ◆ <http://sinclairqls.wordpress.com> - QBlog - a Spanish QL blog.
- ◆ http://www.bytemaniacos.com/ql/tiki-view_blog.php?blogId=1 -Radastan's QL blog (Spanish)
- ◆ http://www.qlvsjaguar.homepage.bluewin.ch/index_frames.html - Urs König's QL blog

Q. I am a retro-computing enthusiast who likes to collect old computer systems from the 1980s. I started out with a QL by trying out one of the free QL emulators out there, decided I liked the multitasking operating system and by chance managed to buy a

used QL. It is just a bare bones QL, no floppy disk drive, no hard disk or extra memory or anything. By reading around, I found it is quite worthwhile expanding the QL by adding a disk drive and expanded memory. Where can I get such add-ons and what should I be looking for?

A. Sadly, none are in active production at the moment. Second-user systems do come up for sale on eBay and SellMyRetro.com from time to time. Rich Mellor at RWAP Services sometimes has second user expansion cards available, and occasionally QUANTA is donated some equipment – contact QUANTA Treasurer John Gilpin to see if he has any such items he could sell.

As to what you should be looking for, there is quite a variety and most should prove OK. Try to get a board which includes both a memory expansion and a floppy disk interface. Most RAM expansions will add at least 512K to the QL's 128K memory. Some very early ones may add less – try to get one offering at least 512K. Most QL disk interfaces will handle at least two floppy disk drives. If you are very lucky you will be able to buy one of the Miracle Systems cards such as Trump Card, Gold Card or Super Gold Card. The Trump Card takes the total QL RAM up to 896K, while the Gold Card adds a faster microprocessor, 2MB of RAM and disk interface. The Super Gold Card gives 4MB of RAM and an even faster 68020 processor. The bad news is that the rarity of these Miracle cards makes them go for silly prices on auction sites sometimes due to the demand from retro computing enthusiasts.

Some of these add-on cards (including the Miracle ones) also add something called Toolkit 2 to a QL. This can also be bought second hand for other systems as an EPROM cartridge which plugs into the EPROM expansion slot at the rear of a QL. Toolkit 2

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is a software toolkit which adds to SuperBASIC and the operating system of a QL – many modern programs rely on it being present. Check first if the interface has Toolkit 2 on board, as there is no point buying something extra if it is already present, quite apart from the fact that duplicating may in itself cause problems.

I would highly recommend that you join QL Forum and the QL-users mailing list. There is a significant number of experienced QL users on these forums who are always happy to answer questions much sooner than waiting for a reply in a printed magazine. To join QL Forum, just go to www.qlforum.co.uk , click on the Register button and follow the instructions. To join QL-users list (which is a kind of forum by email) go to <http://lists.q-v-d.com/listinfo.cgi/ql-users-q-v-d.com> and follow the instructions to sign up. Membership of both is completely free.

AGM PHOTOS

CHRIS GROGAN

Some photographs from the recent workshop and AGM meeting during April of this year.



George Gwilt giving a talk on graphics colour fills on the QL



Nigel Herring in conversation with Quanta Chair, Sarah Gilpin



John Southern attempts a delicate repair, watched by the Recycling Robot in the background

CRUDE BENCHMARKING

JOHN SOUTHERN

We had great fun at the recent QUANTA AGM meeting in Manchester. We ran Tobias Fröschle's uQLx binary on a Raspberry Pi for the two days and it was very usable.

In the last thirty minutes of the meeting we decided to do some quick and dirty benchmark tests to see just how usable it was. This was mainly because we had to hand a Raspberry Pi and an original QL with some accelerator cards.

1 PRINT DATE\$

```
5 a=0
10 FOR n=1 TO 30000
15 a=a+n
20 a=a-n
30 NEXT n
40 PRINT DATE$
```

Writing a quick loop and running it on each machine would give a rough comparison.

On a basic QL this took 177 seconds. The Raspberry Pi took 10 seconds.

We now plugged a GoldCard into the QL and the speed increase dropped the loop to 35 seconds. Going one further we plugged in a SuperGoldCard and we ended up with 14 seconds. This indicated that a Raspberry Pi is slightly faster than a Super GoldCard.

To continue the fun, Nigel Herring then ran the identical loop on his QPC2 and it took just 1 second. This was on an i5 processor. He then moved onto a Zorin Linux system and ran the loop under the uQLx emulator on a Core 2 Duo to get a timing of 2 seconds.

Lee Privett then took over running the same loop on his Q-emulator on a PC. Initially at the original QL speed (270 seconds), GoldCard speed (30 seconds) and finally at full speed (1 second). The latter two being options in the fully registered version of Q-emulator.

The loop was very rough and ready and it was pointed out that I should have at least used END FOR n rather than NEXT n. Overall this was fun as we could see that everything was faster than a SuperGoldCard QL and so would be usable going forward.

As the limiting factor is the speed of the hardware that the emulators run on, I decided to run the test again on identical hardware just for comparison. Different hardware did give slightly different speeds but for ease I concentrated on just one piece of kit with minimum features.

Using the same SuperBASIC loop as above, some of the emulators were too quick. QPC2 was close to 0 seconds but had obviously took some time. By increasing the loop by a factor from 30,000 to either 300,000 (3E5) or 30,000,000 (3E7) we gained a better value. For each test I ran every loop on ten separate occasions and apart from a single case listed below, everything was consistent. I used fresh installs of XP, Debian, Raspbian and Wheezy SoftFloat

I removed some of the RAM chips from an old laptop to give 1GB on a 1.5GHz single core machine.

Under Windows XP we get:

QPC2

0 seconds (14 seconds for 3E5 loops and 137 seconds for 3E7 loops)

QLAY2 with speed 1000 and a delay 50

21 seconds (207 seconds for 3E5 loops)

QLAY2 with speed 1000 and a delay 25

11 seconds (124 seconds for 3E5 loops)

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Q-emulator3.1.3 at Original QL speed

191 seconds

QL2K v0.1 build101 64bit clockmultiplier=1000

3 seconds (30 seconds for 3E5 loops)

SMSQmulator1.17 J6u43

33 seconds (332 seconds for 3E5 loops)

SMSQmulator1.17 J7u21

55 seconds (551 seconds for 3E5 loops)

Under Debian Linux we get:

QPC2

0 seconds (14 seconds for 3E5 loops and 141 seconds for 3E7 loops)

uQLX

1 second (117 seconds for 3E5 loops and 1168 seconds for 3E7 loops)

QLAY2 with speed 1000 and a delay 50

17 seconds (165 seconds for 3E5 loops)

SMSQmulator1.17 IcedTea6 1.8.13

23 seconds (230 seconds for 3E5 loops)

Under Raspberry Pi 256MB we get:

uQLx Raspbian

10 seconds (100 seconds for 3E5 loops)

SMSQmulator1.17 IcedTea 6 1.8.13 Raspbian

2530 seconds (2846 seconds for END FOR n)

SMSQmulator1.17 Java7 SoftFloat

274 seconds (282 seconds for END FOR n)

Overall QPC2 is by far the fastest QL at around 1300 times faster

than a basic QL, although surprisingly under WINE is was only 3% slower rather than the native Windows.

On modern hardware with i5 and i7 processors we have emulators that the problem is slowing them down enough to run some programs. QLAY2 and QL2K both have a multiplier that allows you to adjust how fast you want them to run. The key delay is vital. In the above test, we reduced the speed to complete the loop, but the keyboard was at the limit of being usable with almost every key press giving multiple characters on the screen.

Q-emulator was surprisingly accurate in emulating a Gold Card speed and gave you the option of as fast as possible or as the Original QL speed.

Feeling guilty that I should have used END FOR n in the first place I reran the loop on all the emulators again. The result was up always slower on all but one case where an i5 QPC2 ran 4% quicker. The slowdown was around 14%. This was separately found and reported by Alex Wells.

Does anyone know why END FOR is slower than NEXT?

Obviously the biggest factor is the speed of your hardware but overall even with old slow machines every one of the emulators was usable except the SMSQmulator on the Raspberry Pi where it was constricted by RAM, but even that varied and I would like to know if anyone has tried with a 512MB model.

(If you have any comments, suggestions or replies on this or anything else you see in the QUANTA magazine then email: editor@quanta.org.uk Ed.)

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SUBGROUP MEETINGS

Subgroup meetings are where QUANTA members and non-QUANTA members get together to discuss, tinker and explore all things QL related. As we are now approaching the middle of summer (ha!) the bank holiday did provide some sunshine and much needed warmth. This might be a good opportunity to dust off those cobwebs and visit your local sub-group. There will always be plenty to talk about and a fresh face (new or old is always welcome). If there is not a sub-group near you why not hold one yourself? Contact the chairman on how to go about it, details on our contacts page (pg. 2). The subgroup list is currently two pages long with the sad absence of the West Midlands QL User Group our best wishes go out to all and especially a continued recovery to Mike Bedford.

QUANTA DORSET SUBGROUP – Dorset

Meetings are held, on the second Sunday of each month between 2.00pm and 5.00pm. For location please contact: John Mason - 01425 275894

LONDON QL AND QUANTA GROUP

Meetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome. Members currently each pay a subscription of £40 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc., available for purchase. Time: 2.00 pm. to 5.00 pm., on the second Sunday of the month. No meetings are

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held in December/January - winter break, or July/August –the summer break, giving 8 meetings a year. Malcolm Cadman 020 8691 5780 or email: QL@mcad.demon.co.uk

SOLENT SUBGROUP

Meetings are at 'Sarisbury Green Parish Rooms' (http://sgpr.org.uk/?page_id=28) On the first Saturday each month from 1PM to 5PM. Contact Graham Evans 023 8040 3350 or send an email: graham@grayfire.f9.co.uk

NEMQLUG - NORTH EAST MANCHESTER QL USER GROUP

Meetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway, which was Junction 7 M63 Motorway). Our informal meetings start at 7 pm. and finish at 11 pm. All welcome to our meetings which are held on the last Thursday of each month (except December). Contact John/ Sarah Gilpin 0161 865 2872 for further details. or by email: thegilpins@btinternet.com

SCOTTISH QL USERS GROUP

SQLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming, to get the location by email: Gdqqler@gmail.com

SURREY QUANTA SUBGROUP (SQSG)

The group is currently trying other venues in the Leatherhead - Epsom area. If you plan to attend but do not get our emails, please phone or email Ken Bain for the latest location. Meetings are 8.00 to 10.00 pm on a Wednesday, hopefully last of each month (none in December), but this can vary. Contact Ken Bain 01932 347432 (to midnight), alternative email: kenb@bcs.org.uk

SUSSEX QL USER GROUP

Currently without a meeting place, anyone interested should contact Roy Wood 01273 430501 or email: gbranch@gbranch.demon.co.uk or Keith Mitchell - 01903 742263.

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